

专刊

## An ART iterative reconstruction algorithm for computed tomography of diffraction enhanced imaging

王振天<sup>1,2</sup>, 张丽<sup>1,2</sup>, 黄志峰<sup>1,2</sup>, 康克军<sup>1,2</sup>, 陈志强<sup>1,2</sup>, 方侨光<sup>1,2</sup>, 朱佩平<sup>3</sup>

1 Department of Engineering Physics, Tsinghua University, Beijing 100084, China

2 Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education, Beijing 100084, China

3 Beijing Synchrotron Radiation Facility, Institute of High Energy Physics, Chinese Academy of Sciences, Beijing 100049, China

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**摘要** X-ray diffraction enhanced imaging (DEI) has extremely high sensitivity for weakly absorbing low-Z samples in medical and biological fields. In this paper, we propose an Algebra Reconstruction Technique (ART) iterative reconstruction algorithm for computed tomography of diffraction enhanced imaging (DEI-CT). An Ordered Subsets (OS) technique is used to accelerate the ART reconstruction. Few-view reconstruction is also studied, and a partial differential equation (PDE) type filter which has the ability of edge-preserving and denoising is used to improve the image quality and eliminate the artifacts. The proposed algorithm is validated with both the numerical simulations and the experiment at the Beijing synchrotron radiation facility (BSRF).

**关键词** [diffraction enhanced imaging](#), [algebra reconstruction technique](#), [phase contrast imaging](#)

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**DOI:**

通讯作者:

黄志峰 [huangzhif97@gmail.com](mailto:huangzhif97@gmail.com)

作者个人主页:

王振天<sup>1;2</sup>; 张丽<sup>1;2</sup>; 黄志峰<sup>1;2</sup>; 康克军<sup>1;2</sup>; 陈志强<sup>1;2</sup>; 方侨光<sup>1;2</sup>; 朱佩平<sup>3</sup>

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